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EXAMINER	
LE, QUANG V	

ART UNIT	PAPER NUMBER
2622	

MAIL DATE	DELIVERY MODE
12/08/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/561,349	PARKINSON ET AL.	
	Examiner	Art Unit	
	QUANG V. LE	2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 September 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11,13 and 14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11,13 and 14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 December 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This Office Action is in response to the amendment file on 9/17/2009.
2. **Claims 1-11 and 13-14** have been examined and are pending. **This action is made Final.**

Response to Arguments

3. Applicant's arguments filed on 9/17/2009 have been fully considered but they are not persuasive. Therefore the rejection is still deemed proper and has been maintained.

The cited art does not teach the use of plurality of linear arrays

The applicants assert that Burgess only teaches a single linear detector array and not a plurality of linear detector arrays as cited in claim 1

In response to this argument, the examiner wants to point out that Burgess teaches a single linear detector and Hardin teaches the plurality of linear detector arrays. Hardin teaches a method of range finding and speed detection system that uses two digital cameras, positioned side by side as illustrated in figure 4a. It is well known in the art that the image sensor in the digital camera is a composition of linear detector arrays in both vertical and horizontal directions. The image sensors of the cameras in figure 4a were shown from the top view of the camera. The detector arrays shown in figure 4a represent the rows of the image sensor. The columns of the image sensors are the plurality linear detector arrays as cited in the claim. As such, Hardin's image

sensor teaches the " the plurality of linear arrays of detectors are spaced substantially parallel to one another to image a plurality of areas of interest in a scene" limitation of the claim.

The direction of movement is not determined by Hardin

The applicants assert that the direction of movement is not determined by Hardin, because Hardin only teaches speed of a target and not velocity which has a direction component.

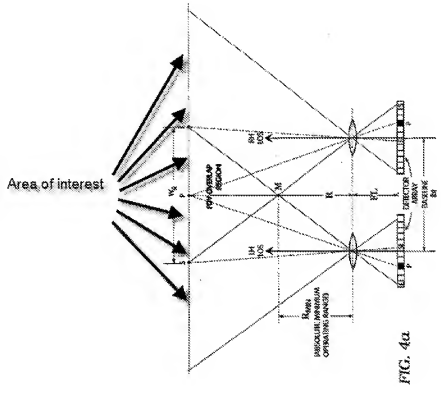
In response to this argument, the examiner wants to direct the applicant to the speed calculation of Hardin (col 12, lines 46-65). Hardin cites " Speed may then be determined based upon the magnitude and slope of the line that is fitted to the group of cartesian coordinates. If the algebraic sign of the slope is positive, the target is receding. If negative, the target is approaching ". Receding and approaching represent the direction of the target.

Plurality of areas of interest in the scenes.

The applicants assert that Hardin does not disclose or suggest "arrays of detectors arranged to image a plurality of area of interest in the scene" as required by claim 1.

In response to this argument, the examiner wants to point out the configuration of the image sensors in figure 4a. It is obvious from this figure that different column of the image sensor capture a different point on the plane of the subject. As such the detectors

in the column of Hardin image sensors capture a plurality of areas of interest in a scene as cited in the claim. (see picture below)



Claim 14 is independently patentable

The applicants assert that there is no teaching or motivation in Hardin to arrange linear detector arrays such that as the object passes through the scene "a component of movement thereof is substantially orthogonal to an alignment direction of said arrays"

In response to this argument, the examiner wants to point out that Hardin detection system will also work when objects is moving a direction perpendicular (orthogonal) to the baseline (alignment of the arrays) as cited in the claim (col 10, lines 20-31).

Grounds for combining references is not logical

The applicants assert that the "security check station" is not supported in neither two of the prior art of record, Burgess and Hardin, and this "security check station" was fabricated in hindsight with the applicant's invention in mind.

In response to this argument, the examiner respectfully disagrees with the accusation. Burgess's figure 1 illustrates a series of vehicle **1-3** leading to a bridge that is monitored by a sensor system **6.** The information is sending back to monitoring building **8**. It is obvious from figure 1 that the monitoring system represents a form of security check station. Further more, Burgess discloses that the sensor can be infra red detectors or small wavelength radar detectors. These sensors are usually used in security environment.

Therefore the rejection is still deemed proper and has been maintained.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set
forth in section 102 of this title, if the differences between the subject matter sought to be patented and
the prior art are such that the subject matter as a whole would have been obvious at the time the
invention was made to a person having ordinary skill in the art to which said subject matter pertains.
Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-4, 7-9 and 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Douglas Burgess, UK Patent Application, GB 2154388, in view of Hardin et al, US Patent No. 5,642,299.

As per claim 1 (previously presented), an image processing system has the following limitations taught by Burgess:

A *[plurality]* of linear arrays of detectors imaged onto a scene of interest and an image store for receiving signals from the linear array when a detected object passes through the scene (col 1, lines 5-48 and figure 1).

Burgess teaches the claimed invention except the following limitations:

Wherein the plurality of linear arrays of detectors are spaced substantially parallel to one another to image a plurality of areas of interest in a scene.

The system further comprises a signal processor for detecting images received by the plurality of arrays and determining direction and speed of movement detected.

However, Hardin teaches a passive optical speed and distance measuring system includes a pair of camera lenses positioned a predetermined distance apart to capture images of a target at different times. A signal processor with a computer determines the location of the offset positions and calculates the range to the target by solving the trigonometry of the triangle formed by the two camera lenses and the target. Once the range to the target is known at two different times the speed of the target is calculated (col 1, lines 60-67 to col 2, lines 1-16, figure 4a, col 12, lines 59-65). *Harding uses two (plurality) cameras (array detectors)mounted side by side along a horizontal line parallel to the line scan of the light sensitivity device or however, if desired, the light sensitive element may be oriented so that the line scan direction is perpendicular to the baseline (col 3, lines 4-19). Figure 4a shows the two detector arrays of the two cameras lined up in line (or parallel) with each other and capture a plurality of area of interest in the scene as cited in the claim. Although, not explicitly disclosed how the system detect the direction of the movement, it is inherent that the direction of the movement should falls out from the calculation of speed .*

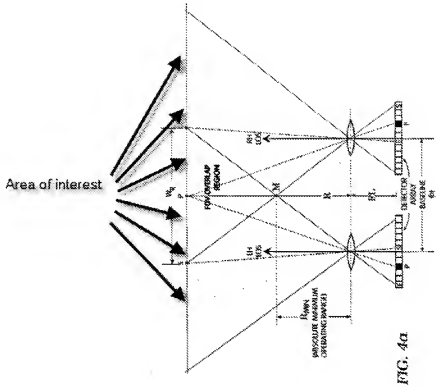


FIG. 4a

Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to incorporate Hardin's speed detection using a plurality of camera into Burgess's image processing system so as to provide an image system that not only capture and save images of vehicles passing through an observed scene but also measure the direction and speed of the vehicle. Such feature is extremely useful for security check stations.

Regarding claim 2 (previously presented), Burgess in view of Hardin teaches the system of claim 1, Burgess further teaches the detectors are infra red detectors (col 1, lines 51-52).

Regarding claim 3 (previously presented), Burgess in view of Hardin teaches the system of claim 1, Burgess further teaches wherein the detectors are visible light sensitive detectors (col 1, lines 49-50)

Regarding claim 4 (previously presented), Burgess in view of Hardin teaches the system of claim 1, Burgess further teaches wherein the detectors are mm wave detectors (Col 1, lines 57-59).

Regarding claim 7 (previously presented), Burgess in view of Hardin teaches the system of claim 1, Burgess further teaches wherein each detector array has its output read out sequentially from each detector element (col 1, lines 94-114).

Regarding claim 8 (previously presented), Burgess in view of Hardin teaches the system of claim 1, Hardin further teaches wherein the processor is arranged to detected object speed (col 1, lines 60-67 to col 2, lines 1-16).

Regarding claim 9 (previously presented), Burgess in view of Hardin the system of claim 1, Hardin further teaches the system including an additional two-dimensional detector array system which may be switched on when an object is detected (col 2, lines 49-62).

Regarding claim 13 (New), Burgess in view of Hardin the system of claim 1, Hardin further teaches wherein the linear arrays of detectors are arranged to image the detected object sequentially in said plurality of area of interest as said detected object passed through the scene (col 1, line 60-67 to col 2, lines 1-16). *Hardin teaches "a timer causes both camera lenses to capture a first target image in the field of view of each lens at time T1 and also at a later time T2..) implies that the object is detected sequentially in the plurality of interest as cited in the claim.*

Regarding claim 14 (New), Burgess in view of Hardin the system of claim 1, Hardin further teaches wherein the linear arrays of detectors are disposed such that as the object passes through the scene a component of movement thereof is substantially orthogonal to an alignment direction of said arrays (col 3, lines 4-19; col 10, line 20-31). *Hardin teaches "however, if desired, the light sensitive element may be oriented so that the line scan direction is perpendicular to the baseline. This is similar to the orthogonal to an alignment direction of the arrays as cited in the claim.*

5. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Burgess in view of Hardin as applied to claim 1 above, further in view of Vock et al., US Patent 5,798,519.

Regarding claim 5 (previously presented), Burgess in view of Hardin teaches the system of claim 1. Although Hardin teaches a method of measuring speed of a target/object using two digital cameras, Hardin does not explicitly disclose wherein each detector element in each linear array (of the camera) has associated therewith an independent noise limiting means (col 10, line 29-39).

However, Vock teaches a method of using camera to measure the speed of a golf ball. Vock further teaches a noise limiting mean by identifying and masking out the defective pixels with high noise level (col 17, lines 66-67 to col 18, lines 1-13).

Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to incorporate noise limiting capability into Burgess in view of Hardin image processing system to produce a target/object detection system that is not susceptible to background noises (Vock: col 18, lines 33-44).

Regarding claim 6 (previously presented), Burgess in view of Hardin, further in view of Vock teaches the system of claim 5, Vock further teaches wherein the noise limiting means at each detector element comprises an independent amplifier (col 17, line 26-45) and filter (col 18, line 22-44).

6. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Burgess in view of Hardin as applied to claim 1 above, further in view of Zhdanov, US Patent No. 6,633,256.

Regarding claim 10 (previously presented), Burgess in view of Hardin teaches the system of claim 1, but they fail to teach wherein several systems are combined into a single unit arranged to give about 360 degree of azimuthal coverage.

However, in an analogous art, Zhdanov teaches a method measuring coordinates of a target using two axis sensors that can cover a full 360 degree of azimuth angle (col 22, line 24-38).

Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to incorporate Zhdanov's 360 degree of azimuth sensor method into Burgess in view of Hardin image processing system so as to provide an object detection system that can detect 360 degree continuously without moving or reconfiguring the equipment. Such system would benefit the threat detection system where continuous 360 degree of coverage is critical.

7. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Burgess in view of Hardin as applied to claim 1 above, further in view of Martin, US Patent No. 6,243,131.

Regarding claim 11 (previously presented), Burgess in view of Hardin teaches the system of claim 1, but they fail to teach wherein outputs from the signal processor are communicated to remote monitoring stations.

However, in an analogous art, Martin teaches a method of using an array of sensor to capture an image of an object, and then send it to display on remote stations (col 6, line 34-37).

Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to incorporate Martin method of communicating with remote stations into Burgess in view of Hardin image processing system so as to provide a network of detection system that can communicate and share detection information. Such system will benefit large scale surveillance system.

Examiner's Note

The Examiner cites particular figures, paragraphs, columns and line numbers in the reference(s), as applied to the claims above. Although the particular citations are representative teachings and are applied to specific limitations within the claims, other passages, internally cited references, and figures may also apply. In preparing a response, it is respectfully requested that the Applicant fully consider the references, in their entirety, as potentially disclosing or teaching all or part of the claimed invention, as well as fully consider the context of the passage as taught by the reference(s) or as disclosed by the Examiner.

Conclusion

8. THIS ACTION IS MADE FINAL.

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quang V. Le whose telephone number is (571) 270-5014. The examiner can normally be reached on Monday through Friday 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor David Ometz can be reached on (571)272-7593. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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